WHAT IS CLAIMED IS:

- 1 1. A circuit comprising:
- 2 two voltage sources; and
- a switching structure having a first terminal coupled to an output of a first voltage source
- 4 and a second terminal coupled to an output of a second voltage source, the switching structure
- 5 containing circuitry to electrically couple the outputs together based on a value on a control
- 6 signal line.
- 1 2. The circuit of claim 1, wherein when the switching structure is off, then the outputs are
- 2 decoupled.
- 1 3. The circuit of claim 1, wherein each of the two voltage sources produce an output of
- 2 equal voltage potential.
- 1 4. The circuit of claim 1, wherein the switching structure is a transistor, the first terminal is
- 2 the transistor's source, and the second terminal is the transistor's drain.
- 1 5. The circuit of claim 4, wherein the control signal line is coupled to the transistor's gate.
- 1 6. The circuit of claim 4, wherein the transistor is a P-type MOSFET (metal oxide
- 2 semiconductor field effect transistor).
- 1 7. The circuit of claim 4, wherein the transistor is an N-type MOSFET (metal oxide
- 2 semiconductor field effect transistor).
- 1 8. The circuit of claim 4, wherein the transistor is made from thick oxide to provide low-
- 2 leakage characteristics.

- 1 9. The circuit of claim 1, wherein the voltage sources are used to power separate power
- 2 domains.
- 1 10. The circuit of claim 1, wherein the voltage sources are used to power sub-domains within
- 2 a single power domain.
- 1 11. The circuit of claim 1, wherein each of the two voltage sources comprises a voltage
- 2 supply controlled by a switch.
- 1 12. The circuit of claim 11, wherein the switch in each voltage source is a transistor, wherein
- 2 the switching structure is a transistor, and wherein the width of the transistors in each voltage
- 3 source are approximately equal and the width of the transistor in the switching structure is on the
- 4 order of 10 to 20 percent the width of the transistors in the voltage sources.
- 1 13. The circuit of claim 12, wherein the voltage source transistors and the switching structure
- 2 transistor are P-type MOSFETs (metal oxide semiconductor field effect transistor).
- 1 14. The circuit of claim 12, wherein the voltage source transistors and the switching structure
- 2 transistor are N-type MOSFETs (metal oxide semiconductor field effect transistor).
- 1 15. The circuit of claim 1, wherein the voltage sources share a common voltage supply.
- 1 16. The circuit of claim 1, wherein each voltage source has an independent voltage supply.
- 1 17. The circuit of claim 1, wherein the switching structure reduces turn on current spikes.

- 1 18. A circuit comprising:
- 2 M voltage sources, wherein M is an integer number greater than two (2); and
- a switching network having M terminals, wherein each terminal is coupled to an output
- 4 from one of the M voltage sources, the switching network containing circuitry to electrically
- 5 couple the outputs of the M voltage sources, wherein the coupling of the outputs is based on a
- 6 mapping.
- 1 19. The circuit of claim 18, wherein some of the voltage sources produce outputs with the
- 2 same voltage potential.
- 1 20. The circuit of claim 19, wherein the outputs of voltage sources coupled together all have
- 2 the same voltage potential.
- 1 21. The circuit of claim 19, wherein switches couple the outputs, and wherein outputs with
- 2 different voltage potentials are not connected by switches.
- 1 22. The circuit of claim 18, wherein the mapping is stored in a memory.
- 1 23. The circuit of claim 18, wherein the mapping is dynamically computed.
- 1 24. The circuit of claim 18, wherein switches couple the outputs, and wherein the mapping
- 2 specifies the state of each switch in the switching network.
- 1 25. The circuit of claim 18, wherein each output is connected to each other output via a
- 2 switch.
- 1 26. The circuit of claim 18, wherein each output is connected to two other outputs via a
- 2 switch.

- 1 27. The circuit of claim 26, wherein the outputs are connected in a circular fashion.
- 1 28. The circuit of claim 18, wherein the M voltage sources supply power to M power
- 2 domains.
- 1 29. The circuit of claim 18, wherein the M voltage sources supply power to M power sub-
- 2 domains within a single power domain.
- 1 30. The circuit of claim 18, wherein the switching network comprises a plurality of switching
- 2 structures, each switching structure coupling two outputs of equal voltage potential together, the
- 3 switching structure comprising:
- a first terminal coupled to an output of a first voltage source;
- a second terminal coupled to an output of a second voltage source; and
- 6 the switching structure further comprising circuitry to electrically couple the outputs
- 7 together based on a value on a control signal line
- 1 31. The circuit of claim 30, wherein the switching structure is a transistor, the first terminal is
- 2 the transistor's source, the second terminal is the transistor's drain, and the control signal line is
- 3 coupled to the transistor's gate.

TI-36101 -24-

- 1 32. An integrated circuit comprising:
 2 a circuitry block; and
- a plurality of power supplies, each coupled to the circuitry block, each power supply
 comprising:
- M voltage sources, wherein M is an integer number greater than one (1); and
 a switching network having M terminals, wherein each terminal is coupled to an
 output from one of the M voltage sources, the switching network containing circuitry to
 electrically couple the outputs of the M voltage sources, wherein the coupling of the outputs is
 based on a mapping.
- 1 33. The integrated circuit of claim 32, wherein the circuitry block comprises a plurality of circuit blocks, and wherein there is at least one power supply associated with each circuit block.
- 1 34. The integrated circuit of claim 33, wherein all power supplies are identical.
- 1 35. The integrated circuit of claim 33, wherein each power supply may be designed differently.
- 1 36. The integrated circuit of claim 33, wherein each circuit block and its associated power supply are located adjacent to one another on the integrated circuit.